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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/654,314

09/03/2003

Sway Chuang

64,600-116

4376

570

7590

10/01/2007

AKIN GUMP STRAUSS HAUER & FELD L.L.P.
ONE COMMERCE SQUARE
2005 MARKET STREET, SUITE 2200
PHILADELPHIA, PA 19103

EXAMINER

GORDON, BRIAN R

ART UNIT

PAPER NUMBER

1743

MAIL DATE

DELIVERY MODE

10/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/654,314

Applicant(s)

CHUANG ET AL.

Examiner

Brian R. Gordon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7-13-07.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see remarks, filed July 13, 2007, with respect to the rejection(s) of claim(s) 1-7 and 15-20 under 102 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Saltsman et al. US 2005/0106066.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 15, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Saltsman et al. US 2005/0106066.

Saltsman et al. disclose microfluidic devices and methods for manipulating and analyzing fluid samples. The disclosed microfluidic devices utilize a plurality of microfluidic channels, inlets, valves, filter, pumps, liquid barriers and other elements arranged in various configurations to manipulate the flow of a fluid sample in order to prepare such sample for analysis (abstract).

Microfluidic devices may be constructed in a multi-layer laminated structure wherein each layer has channels and structures fabricated from a laminate material to form microscale voids or channels where fluids flow [0007].

As shown, device 410 also comprises a plurality of check valves. A first check valve 470 is interposed between sample inlet 415 and first end 422 of first microfluidic channel 420, and permits fluid flow towards first microfluidic channel 420. A second check valve 472 is interposed between second end 424 of first microfluidic channel 420 and first bellows pump (chamber) 450, and permits fluid flow towards first bellows pump 450. A third check valve 474 is interposed between first bellows pump 450 and first end 432 of second microfluidic channel 430, and permits fluid flow towards second microfluidic channel 430. A fourth check valve 476 is interposed between second end 434 of second microfluidic channel 430 and second bellows pump 460, and permits fluid flow towards second bellows pump 460. A fifth check valve 478 is interposed between second bellows pump 460 and first end 442 of third microfluidic channel 440, and permits fluid flow towards third microfluidic channel 440. A sixth check valve 480 is interposed between second end 444 of third microfluidic channel 440 and sample inlet 415, and permits fluid flow towards sample inlet 415. As in FIG. 2A, first, second, third, fourth, fifth and sixth check valves, 470, 472, 474, 476, 478 and 480, permit fluid flow in one direction only (as noted by the arrows in FIG. 4A) [0054].

During operation, a liquid sample is placed into sample inlet 415 (as shown in FIG. 4B) and first and second bellows pumps 450 and 460 are alternately, sequentially and/or repeatedly depressed and released, either manually by a user or mechanically

by an external device, to draw and push the liquid sample through first, second and third microfluidic channels 420, 430 and 440 (as shown in FIGS. 4C through 4E). During these series of depressions and releases, first, second, third, fourth, fifth and sixth check valves, 470, 472, 474, 476, 478 and 480, ensure that the liquid sample flows in one continuous direction through microfluidic device 410 [0055].

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 4-6 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saltsman et al.

Saltsman et al. does specifically disclose the device as comprising at least four connection channels or 5 chambers.

However, Saltsman states it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. A person of ordinary skill in the art will appreciate that a plurality of microfluidic channels, inlets, valves, membranes, pumps, liquid barriers and other elements may be arranged in various configurations in accordance with the present invention to manipulate the flow of a fluid sample in order to prepare such sample for analysis. Accordingly, the invention is not limited except as by the appended claims.

As such it would have been obvious to one of ordinary skill in the art at the time of the invention to recognize the varying the number of elements such as the channels and valves would have been an obvious variation/modification of the specific embodiments disclosed by Saltsman et al.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Strand; David et al.; Sundararajan; Narayanan; Breidford, Wayne et al.; and McNeely, Michael R et al. disclose microfluidic devices.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is 571-272-1258. The examiner can normally be reached on M-F, 1st Fri. Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Brian R Gordon
Primary Examiner
Art Unit 1743

brg

BRIAN R. GORDON
PRIMARY EXAMINER